

Amendments to the Drawings

The attached replacement sheets of drawings include changes to Figure 1 on sheet '1/3'. Figure 1 is amended herein to add element labels "Filter", "Tuning Controller", "IF Filter", "Signal Processor", and Display/Control", to elements 10, 40, 50, 80 and 90, respectively. Figure 2 has been moved to sheet '2/3' with Figure 3, Figure 4 has been moved to sheet '3/3' with Figure 5. There are no amendments to Figures 2-5 of the drawings sheets. Replacement sheets '1/3', '2/3', and '3/3' replace sheets '1/3', '2/3', and '3/3', as originally filed.

Attachment: Replacement Drawing Sheets (3 pages)

REMARKS/ARGUMENTS

There are no amendments to the specification herein.

The Examiner objected to the drawings contending, "[t]he drawing should label all the elements in the figures". Specifically, the Examiner objected to "Fig. 1" contending that "element 10 should be labeled as 'filter'; and element 40 should be labeled as 'Tuning Control frequency Scan', etc.".

Attached hereto are corrected/replacement drawing sheets (3 pages) corresponding to originally filed sheets '1/3', '2/3', and '3/3'. Replacement drawing sheet '1/1' contains FIG. 1 amended to add element labels as suggested by the Examiner. In particular, FIG. 1 of the replacement drawing sheet 1/1 illustrates FIG. 1 as originally filed except that element 10 is labeled 'Filter', element 40 is labeled 'Tuning Controller', element 50 is labeled 'IF Filter', element 80 is labeled 'Signal Processor', and element 90 is labeled 'Display/Control'. Support for the labeling of elements 10, 40, 50, 80, and 90, is found at least on Page 7, lines 8-10 and line 25, of Applicant's specification as originally filed. Replacement drawing sheet '2/3' contains FIG. 2 and FIG. 3, as originally filed. Replacement drawing sheet '3/3' contains FIG. 4 and FIG. 5, as originally filed. Replacement drawing sheets '2/3' and '3/3' are necessitated by a size increase of FIG. 1 due to the added labels. No new matter is added. Acceptance and consideration of replacement drawing sheets '1/3', '2/3', and '3/3' as well as withdrawal of the Examiner's objection to the drawings are respectfully requested.

In the Claims, Claims 1-30 are pending. Claims 1, 3, 5, 6, 18, 20, 21 and 27 are rejected and Claims 2, 4, 7-17, 19, 22-26 and 28-30 are objected to. Reconsideration is respectfully requested.

Claims 12, 15, 18 and 21 are cancelled, without prejudice, hereinabove. Claims 2, 19, 20, 22, 24, 27 and 29 are amended hereinabove. New Claims 31-34 are added. No new matter is added. Entry and consideration of the new Claims 31-34, as well as amended Claims 2, 19, 20, 22, 24, 27 and 29, are respectfully requested.

The Examiner objected to Claims 2, 13-17 and 23-26 due to informalities. In particular, the Examiner contended, "[i]n claim 2 line 3, " \mathcal{L}_T " should be changed to $-\mathcal{L}_A-$ " and "[i]n claims 23 line 11, " f_m " has not been defined". The Examiner

required appropriate correction. The Examiner provided no specific reason for objecting to Claims 13-17 and 24-26.

Applicant agrees with the Examiner that term " \mathcal{L}_T " in Claim 2, as originally filed, is incorrect. Applicant submits that the term should have been " \mathcal{L}_A " and is a minor typographical error. Applicant has amended not only Claim 2, but also Claims 24, 27 and 29 to correct this aforementioned minor typographical error and any other informalities therein. In particular, Claims 2, 24 and 29 are amended to change " $\mathcal{L}_T(f_m)$ " in the equation therein to " $\mathcal{L}_A(f_m)$ ". Claim 27 is amended to change "actual phase noise $\mathcal{L}_T(f_m)$ " in the equation therein to "actual phase noise $\mathcal{L}_A(f_m)$ ".

However, Applicant disagrees with the Examiner that the term " f_m " has not been defined in Claim 23. The term ' f_m ' is not a separate term in Claim 23, but instead, the term ' f_m ' is recited with respect to " $\mathcal{L}(f_m)$ ", " $\mathcal{L}_{SA}(f_m)$ " and " $\mathcal{L}_A(f_m)$ ", which are each clearly defined in Claim 23. No additional information regarding the term ' f_m ' is necessary to understand the scope of Claim 23. Moreover, Applicant clearly defines the term " f_m " as "an offset frequency", the offset being "measured from a carrier frequency f_c " (Applicant's specification, Page 6, lines 23-24). Moreover, one skilled in the art would expect 'phase noise' to be measured or characterized as a function of frequency and would normally associate a variable such as ' f ' (e.g., f_m) with such a function of frequency. Thus, not only is the term " f_m " clearly defined by Applicant, the use of the term is consistent with conventional and accepted usage (plain meaning) in the art.

Applicant respectfully reminds the Examiner that there is no requirement to define within a claim each term when the meaning of the terms are either well known in the art and/or are clearly defined in the specification. In particular, as stated in the MPEP 2111.01 *Plain Meaning*, "words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)". Applicant requests that the objection to Claim 23 regarding the term " f_m " be withdrawn.

Applicant is unable to address the Examiner's objection to Claims 13-17 and 24-26 without further specificity regarding the objection thereof. Applicant respectfully requests that the Examiner either provide such specificity in writing or withdraw the objection.

The Examiner rejected Claims 1, 3, 5, 6 and 27 under 35 U.S.C. 102(b) as being anticipated by Roth, U.S. Patent No. 6,313,619 (hereinafter 'Roth').

Applicant respectfully traverses the rejection on the grounds that a *prima facie* case of anticipation with respect Claims 1, 3, 5, 6 and 27 has not been established. In particular, Applicant submits that the Examiner failed to show that Roth discloses, explicitly or implicitly, "each element of the claim under consideration" (*W.L. Gore & Associates v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)) and/or that Roth discloses the claimed elements "arranged as in the claim" (*Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)) as required by the Federal Circuit for a finding of *prima facie* anticipation under 35 U.S.C. 102.

For example, contrary to that contended by the Examiner, Roth at least fails to disclose "applying a correction to a measured phase noise $\mathcal{L}(f_m)$ value for the SUT to determine an actual phase noise $\mathcal{L}_A(f_m)$ value for the SUT, wherein the correction comprises *mathematically* removing an added phase noise $\mathcal{L}_{SA}(f_m)$ value contributed by the spectrum analyzer from the measured phase noise $\mathcal{L}(f_m)$ value of the SUT", as recited in Applicant's Claim 1 (*emphasis added*). Similarly, Roth at least does not disclose "a controller that *mathematically* corrects the phase noise $\mathcal{L}(f_m)$ data of the SUT measured by the spectrum analyzer to produce actual phase noise $\mathcal{L}_A(f_m)$ data for the SUT", as recited in Applicant's Claim 27 (*emphasis added*).

Roth clearly describes an arrangement for measuring phase noise that employs a compensation generator (i.e., "mixers 19, 16, and 13 with intermediate frequency filters 18, 15, and 12a") to create a compensation signal that is added or summed by "adder stage 27" to a "an output signal of a test specimen 28" at an input of a spectrum analyzer (Roth, Col. 2, lines 20-25 and lines 41-45). According to Roth, "the compensation signal of the compensation generator having the same level and oppositely phased" as the output signal produces a sum signal in which the carrier is "strongly suppressed" and wherein "the sum signal contains only a small carrier remainder and sideband noise of the test specimen" (Roth, Col. 3, lines 8-16). As such, Roth is explicitly creating and applying a compensation *signal* to the output signal. Moreover, the compensating signal is being added to the output signal at an input of the spectrum analyzer (see for example, Roth, Fig. 1, elements 26 and 27).

The compensation signal, thus applied, essentially cancels out the carrier of the output signal of the test specimen (i.e., input signal to the spectrum analyzer) such that “only the phase noise of the input signal is mixed on the output IF, which can be measured there as noise-power density” (Roth, Col. 3, lines 22-24).

As such, Roth fails to disclose, “applying a correction to a *measured* phase noise” as recited in Applicant’s Claim 1 (*emphasis* added). Instead, Roth explicitly discloses canceling out a contribution of the mixers of the spectrum analyzer using a compensation signal *before* measuring phase noise. Similarly, Roth fails to disclose either “*mathematically* removing an added phase noise $\mathcal{L}_{SA}(f_m)$ value contributed by the spectrum analyzer from the measured phase noise $\mathcal{L}(f_m)$ value of the SUT” or “a controller that *mathematically* corrects the phase noise $\mathcal{L}(f_m)$ data of the SUT measured by the spectrum analyzer” as recited in Applicant’s Claims 1 and 27, respectively (*emphasis* added).

Instead, Roth teaches adding to the input signal at an input of the spectrum analyzer a compensation *signal* in an attempt to cancel out or null a carrier of the input signal while essentially leaving intact noise sidebands of the input signal. Canceling or nulling the carrier of the input signal in this way has the effect of raising an effective noise sideband of the input signal by an amount of the nulling such that a noise floor of the spectrum analyzer is below a level of the input signal noise sidebands. Thus, the spectrum analyzer noise floor introduces less error in the measurement of the input signal noise sidebands enabling the spectrum analyzer to obtain by direct measurement a phase noise of the input signal that is more accurate than would be obtained without the compensation signal. Moreover, since the addition of the compensation signal facilitates accurate direct measurement of the input signal phase noise according to Roth, there is effectively no need to mathematically correct the measured phase noise to produce actual phase noise data, as claimed by Applicant.

As such, Roth clearly does not and cannot disclose each element recited in rejected Claims 1 and 27, as originally filed. In addition, Roth clearly fails to disclose each element arranged as in the claim. Claims 3, 5 and 6, are dependent from and include all of the limitation of Claim 1. As such, Roth similarly fails to disclose each element recited in rejected Claims 3, 5 and 6.

Hence, Applicant respectfully submits that the Examiner has failed to establish *prima facie* anticipation by Roth of Claims 1, 3, 5, 6 and 27, as originally filed. Applicant respectfully requests that the examiner reconsider and withdraw the unsupported rejection under 35 U.S.C. 102(b) with respect to Roth for at least the reasons set forth hereinabove.

The Examiner rejected Claims 18, 20 and 21 under 35 U.S.C. 102(b) as being anticipated by Rhode & Schwarz, "Making a Phase Noise Measurement", Figs. 1-3, citing "software Help Menus for using phase noise measurement software" (hereinafter 'Rhode & Schwarz'). The Examiner further indicated that Claim 19 would be allowable if rewritten in independent form.

Applicant respectfully disagrees with the Examiner regarding that disclosed by Rhode & Schwarz. However, in order to expedite the prosecution of this application, Applicant has cancelled Claims 18 and 21, without prejudice, hereinabove. Hence, Applicant submits that the rejection of Claims 18 and 21 is rendered moot.

In addition, Applicant has amended Claim 19 to include the limitations of cancelled Claim 18, as suggested by the Examiner. Applicant further has amended Claim 20 to be dependent from Claim 19, and has amended Claim 22 to better correspond with Claim 19 from which it is ultimately dependent. No new matter is added. Entry of the amendments to Claims 19, 20 and 22 is respectfully requested. Moreover, amended Claim 20 is dependent from now amended Claim 19, which was deemed to be allowable by the Examiner. As such, Claim 20 is allowable for at least the reasons that the Examiner deemed Claim 19 to be allowable. Withdrawal of the rejection of Claim 20 and allowance of Claims 19 and 20, as amended herein, are respectfully requested.

Applicant appreciates the Examiner's acknowledgement of the allowability of Claims 23-26 "if rewritten to overcome the objection(s) set forth in this Office Action". As discussed hereinabove, Applicant believes that the objection to Claim 23 is without merit and respectfully requests reconsideration. Moreover, the amendment to the equation in Claim 24 overcomes any objection with regard to " $\mathcal{L}_T(f_m)$ " therein.

Further, Applicant appreciates the examiner's acknowledgement of the allowability of Claims 2, 4, 7-12, 22 and 28-30 if rewritten in independent form including all of the limitations of the base claim and any intervening claim. However,

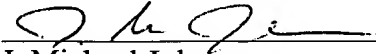
in light of Applicant's remarks above, Applicant respectfully declines to rewrite Claims 2, 4, 7-12, 22 and 28-30 at this time and requests reconsideration.

New Claims 31-34 are added hereinabove. Support for Claim 31 is provided at least by Claim 23 and Applicant's specification, Page 11, lines 10-14, and Page 12, lines 4-7, as originally filed. Support for Claim 32 is provided at least by Claims 2 and 11, as originally filed. Support for Claim 33 is provided at least by Applicant's specification, Page 12, lines 4-7, as originally filed. Support for Claim 34 is provided at least by Claim 8, as originally filed. No new matter is added. Entry and consideration of Claims 31-34 are respectfully requested.

In summary, Claims 1-30 are pending. Claims 1, 3, 5, 6, 18, 20, 21 and 27 were rejected. Claims 2, 4, 7-17, 19, 22-26 and 28-30 and Figure 1 were objected to. Claims 2, 19, 20, 22, 24, 27 and 29 are amended herein and Claims 12, 15, 18 and 21 are cancelled herein, without prejudice. New Claims 31-34 are added and drawing Replacement Sheets are enclosed. For the reasons detailed above, it is respectfully submitted that Claims 1-11, 13-14, 16-17, 19-20, 22, 23-26, 27-30 and 31-34, as presented herein, are in condition for allowance. It is respectfully requested that Claims 1-11, 13-14, 16-17, 19-20, 22, 23-26, 27-30 and 31-34 be allowed, and that the application be passed to issue at an early date.

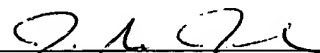
Should the Examiner have any questions regarding the above, the Examiner is urged to contact the undersigned by telephone at the number given below or John L. Imperato, Attorney for Applicant, Registration No. 40,026 at Agilent Technologies, Inc., telephone number (650) 485-5511.

Respectfully submitted,
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.


J. Michael Johnson
Date 4/5/05

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